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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen C. Kaufman Intellectual Property Law Dept. IBM Corporation P.O. Box 218 Yorktown Heights, NY 10598	

EXAMINER	
FLETCHER, JAMES A	

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/632,045

Applicant(s)

ADLER ET AL.

Examiner

James A. Fletcher

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

New Art Unit

1. Please include the new Art Unit 2621 in the caption or heading of any written or facsimile communication submitted after this Office Action because the examiner, who was assigned to Art Unit 2616, has been assigned to new Art Unit 2621. Your cooperation in this matter will assist in the timely processing of the submission and is appreciated by the Office.

Claim Objections

2. Claims 5 and 8 are objected to because of the following informalities: Both claims recite the misspelled word "adequaltely" in limitation 5. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (7,046,910).

Regarding claims 1, 13 and 14, Chen et al disclose a method and program on a computer-readable medium for producing fast forward and backward preview of video, the method comprising:

- processing incoming frames so as to derive successive representative frames whose content is representative of successive video segments (Col 4, lines 44-45 "The I-frame is divided into slices and spread, as I-slices, uniformly over the P-frames"), and
- displaying said successive representative frames at a rate that achieves a desired acceleration factor (Col 5, lines 16-19 "replace one P-frame from the progressive I-slice refreshed MPEG data stream with a complete I-frame every 'refresh rate' (N) number of frames").

Regarding claim 3, Chen et al disclose a method wherein a small number of incoming frames are buffered, and said method further comprises:

- determining for the current frame in said small number of incoming frames whether there exists a frame F_R that represents the content of a segment surrounding the current frame (Col 6, lines 64-67 "the decoder 220 may determine whether the incoming data stream is an I-frame based MPEG data stream or a progressive I-slice refreshed MPEG data stream"),
- if so, accepting the frame F_R as a representative frame for the said segment, displaying F_R as a new representative frame, and proceeding to the next incoming frame which becomes a new current frame (Col 7, lines 6-9 "In the event that the MPEG data stream is a progressive I-slice refreshed MPEG

data stream, the data stream will be processed for trick play mode use as discussed above”);

- if not, proceeding to the next incoming frame which becomes a new current frame and continuing the displaying the current representative frame, selected in an earlier iteration or during initialization (Col 7, lines 3-6 “Additional I-frames may be inserted into the I-frame based MPEG data stream, using the process described above, prior to storing the data stream for trick play mode use”).

Regarding claim 4, Chen et al disclose a method wherein a small number of incoming frames are buffered, and said method further comprises proceeding to the next incoming frame which becomes a new current frame and continuing the displaying the current representative frame, selected in an earlier iteration or during initialization (Col 6, lines 8-11 “the memory 240 may be provided to buffer the incoming data stream 10 to enable the processor to insert the complete I-frame into the data stream in place of the selected P-frame”).

Regarding claims 5 and 8, Chen et al disclose a method including:

- receiving a sequence of video frames $F(1), F(2), \dots, F(i), \dots$ (Col 5, lines 27-30 “A progressive I-slice refreshed MPEG data stream 10 having I-slices distributed over multiple P-frames...is received at a television appliance”);
- for a current frame $F(i)$, storing a subset S of frames $F(j(1)), F(j(2)), \dots, F(j(n))$ preceding the current frame or a representation thereof (Col 5, lines 30-32 “The P-frames are extracted (i.e. copied) (step 100) from the data

stream 10. The complete incoming data stream 10 is also buffered (step 101)");

- determining whether the frame $F(i)$ is similar to all the frames in said subset $F(j(1)), F(j(2)), \dots, F(j(n))$ (Col 5, lines 32-34 "The extracted P-frames are decoded (step 102) to recover the I-slices which make up a complete I-frame");
- if so, updating the set S of frames, appending the current frame $F(i)$ to said current video segment, and proceeding to the next frame $F(i+1)$ which becomes the new current frame (Col 5, lines 42-45 "A selected P-frame in the buffered MPEG data stream is replaced with the complete I-frame to provide an encoded I-frame based data stream (step 105)");
- if not, accepting a frame $F(i-1)$ preceding the current frame $F(i)$ as the representative frame F_R for said current video segment and appending successive frames $F(i), F(i+1), F(i+2) \dots$, to the current video segment until the content of one of said successive frames $F(i+k)$ is no longer adequately represented by the representative frame F_R (Col 5, lines 53-55 "Alternately, at step 106, each P-frame may be re-encoded as an I-frame and any or all P-frames may be replaced with such I-frames at step 105");
- and commencing a new video segment with said one of said successive frames $F(i+k)$ (Col 6, lines 46-50 "the position of each I-slice in the series of four I-slices in FIG. 1 repeats with each successive series of four I-slices so that the image portions are refreshed in the same order (i.e. the portion of the

image refreshed by the fifth I-slice is the same as that refreshed by the first I-slice)").

Regarding claims 6 and 9, Chen et al disclose a method wherein the frames in said subset $F(j(1))$, $F(j(2))$, . . . , $F(j(n))$ are sequential (Fig. 1 shows frames of video in a sequence):

Regarding claims 7 and 10, Chen et al disclose a method wherein the frames in said subset $F(j(1))$, $F(j(2))$, . . . , $F(j(n))$ include frames that are non-sequential (Col 2, lines 65-67 "the 'first frame to be inserted' is the first frame in the encoding order and not necessarily the first frame in the display order").

Regarding claim 11, Chen et al disclose an apparatus for selecting R-Frames for display in a video streaming or buffered video system, so as to produce fast forward and backward preview in an incoming sequence of video frames, said apparatus comprising:

- a buffer memory for storing a small number of frames from an incoming video data stream (Col 6, lines 8-11 "the memory 240 may be provided to buffer the incoming data stream 10 to enable the processor to insert the complete I-frame into the data stream in place of the selected P-frame"),
- a segment processor coupled to the buffer memory for comparing successive current frames with the small number of frames in the buffer memory and for appending each current frame to a current segment if a content of the current segment is represented by a content of the respective current frame and for otherwise commencing a new segment with the current frame (Col 4, lines

44-45 "The I-frame is divided into slices and spread, as I-slices, uniformly over the P-frames"), and

- a representative frame processor coupled to the segment processor for determining for each segment a respective representative frame F_R that represents a content of the segment (Col 5, lines 4-6 "I-slice 20 contained in P-frame P1 provides reference macroblocks used to create motion vectors that predict the contents of P-slice 40 in P-frame P4").

Regarding claim 12, Chen et al disclose an apparatus further including: a display driver coupled to the representative frame processor for displaying selected R-Frames (Col 6, lines 2-3 "The I-frame based data stream 200 is stored for trick play mode use").

Regarding claims 15 and 16, Chen et al disclose a computer program product comprising a computer useable medium having computer readable program code embodied therein for producing fast forward and backward preview of video for which a small number of incoming frames are buffered, the computer program product comprising:

- computer readable program code for causing the computer to determine whether each incoming frame may be associated with a current segment (Col 5, lines 4-6 "I-slice 20 contained in P-frame P1 provides reference macroblocks used to create motion vectors that predict the contents of P-slice 40 in P-frame P4");

- computer readable program code for causing the computer to append the incoming frame to said segment if it may be associated with a current segment, and for otherwise commencing a new segment with the incoming frame (Col 5, lines 42-45 "A selected P-frame in the buffered MPEG data stream is replaced with the complete I-frame to provide an encoded I-frame based data stream (step 105)");
- computer readable program code for causing the computer to determine a respective representative frame for each segment (Col 5, lines 42-45 "A selected P-frame in the buffered MPEG data stream is replaced with the complete I-frame to provide an encoded I-frame based data stream (step 105)"); and
- computer readable program code for causing the computer to display the representative frames (Col 5, lines 57-59 "progressive I-slice refreshed MPEG data streams are transcoded to enable trick play mode features on a television appliance (e.g., a transcoder device)").

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al.

Regarding claim 2, Chen et al are silent regarding repeating representative frames to prevent flicker or blinking.

The Examiner takes official notice that repetition of an image signal provided to a screen requiring periodic refresh, as nearly all television sets are, is notoriously well known to those of ordinary skill in the art, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chen et al in order to provide for refreshing of the image for as long as the image is to be displayed on the screen to prevent flicker.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fletcher whose telephone number is (571) 272-7377. The examiner can normally be reached on 7:45-5:45 M-Th, first Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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JAF
6 January 2008



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